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ABSTRACT

Seven typical faculty concerns about the appropriateness of using ratings of instructor and instruction are examined. These are summarized in terms of common observations frequently expressed by faculty: (1) Students cannot make consistent judgments because of their immaturity, lack of experience, and capriciousness; and a widely held belief is that only colleagues with excellent publication records and experience are qualified to evaluate their peer's instruction. (2) Most student rating schemes are nothing more than a popularity contest. (3) Students are not able to make accurate judgments until they have been away from the course and possibly from the university for several years. (4) The student rating forms are unreliable and invalid. (5) There are extraneous variables or conditions that can affect student ratings, including class size, schedule, term, student sex, major, and level. (6) The grade a student receives in the course is highly correlated with his rating of the course and the instructor. (7) A question frequently raised is how student evaluations can be used to improve instruction. Research addressing these problems is cited that makes use of the Illinois Course Evaluation Questionnaire (CEQ). (LBH)

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TYPICAL FACULTY CONCERNS ABOUT STUDENT EVALUATION OF INSTRUCTION[1]

Lawrence M. Aleamoni[2]

In the past few years there have been many proposals for evaluating instruction and a few of them were also concerned with trying to relate evaluation to the improvement of instruction. Most proposals suggested the use of similar elements in the evaluation procedure. These include (a) judgment by student, peer, self, and supervisor (department head), and (b) judgments of course material, course content, course objectives, and quality of student learning. If, however, one looks for actual working models of instructional evaluation, it is immediately apparent that schemes involving systematic ratings by peer, supervisor, or self, or of material, content, etc., are rarely actualized. More often than not, the student ratings of instructor and instruction appear as the only elements in any of the "working models" and there are many reasons one could cite for this. This paper, however, will focus specifically on seven typical faculty concerns about the appropriateness of using ratings of instructor and instruction, at all. These are summarized below in terms of common observations frequently expressed by faculty.

1. (a) Students cannot make consistent judgments concerning the instructor and instruction because of their immaturity, lack of experience, and capriciousness. Conversely,

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(b) A widely held belief is that only colleagues with excellent publication records and experience are qualified to evaluate their peer's instruction.

2. Most student rating schemes are nothing more than a popularity contest, with the warm, friendly, humorous, easy grading instructor emerging as the winner.
3. Students are not able to make accurate judgments until they have been away from the course and possibly away from the university for several years.
4. The student rating forms are both unreliable and invalid.
5. There are extraneous variables or conditions that can affect student ratings. Some of the more common ones are:
   (a) the size of the class
   (b) the sex of the student
   (c) the time of day the course was offered
   (d) whether the student was taking the course as a requirement or on an elective basis
   (e) whether the student was a major or a non-major
   (f) the term (or semester) the course was offered
   (g) the level of the course (freshmen, sophomore, junior, senior, graduate)
   (h) the rank of the instructor (instructor, assistant professor, associate professor, full professor)
6. The grade or mark a student receives in the course is highly correlated with his rating of the course and the instructor.
7. Finally, a question that is frequently raised is "How can student evaluations possibly be used to improve instruction?"

Surprising as it may be, answers to these problems and questions can be found in a plethora of research that spans at least 50 years. Most of this research has been conducted using student evaluation (rating) questionnaires similar to the one presently used at the University of Illinois at Urbana-Champaign (UIUC) and entitled the Illinois Course Evaluation Questionnaire (CEQ). A copy of the CEQ is presented in Appendix A.

Before beginning to cite and summarize the research addressing each of the problems and questions above, a brief description of the CEQ will be presented in order to provide a meaningful frame of reference for the various studies.

The CEQ is an instrument used to collect student attitudes and opinions toward a course (Aleamoni, 1972a; Aleamoni and Spencer, 1973). Its purpose is to enable faculty members to collect evaluative information about their teaching. The data is collected and processed by course section but may also be processed by course, department, college, etc. Extensive normative data has been gathered on the CEQ over the past 10 years and this provides the instructor with valuable comparisons on the instructional dimensions of (a) General Course Attitude, (b) Course Content, (c) Method of Instruction, (d) Interest and Attention of the students, and (e) the Instructor. These instructional dimensions represent the subscales of the CEQ. The 23 items that make up the subscales are used to help provide some diagnostic feedback to the instructor through appropriate norm comparisons. For example, each instructor's results are compared with those of other instructors of his own academic

rank, teaching at the same course level and in his own department, college or university, as well as with courses that have used the CEQ throughout the United States.

The student responses to the CEQ are anonymous, and two copies of the questionnaire results (see Appendix B) along with interpretative information are returned only to the instructor. The instructor may decide to submit one copy to his department chairman for rank, pay, and tenure consideration, but the CEQ is primarily used to provide feedback to instructors as to where potential problems may exist in the classroom. There is ample space on the CEQ form for instructors to utilize more specifically diagnostic items in identified problem areas. Conferences relative to the interpretation and utilization of results may be arranged at the instructor's convenience with consultants from the Measurement and Research Division of the Office of Instructional Resources at UIUC.

With that brief description of the CEQ as background, responses to the seven concerns are now presented in the order of their presentation above.

1. (a) Students cannot consistently judge instructor and instruction. There is ample evidence on this point dating back to 1924, according to Guthrie (1954), in which reliabilities of student ratings remain in the .80 to .90 range. More recent literature on the subject by Costin, Greenough and Menges (1971) and Aleamoni (1972b) has shown that well developed instruments and administration procedures can consistently yield high reliabilities (i.e., reliabilities in the .90's).

(b) Only colleagues with excellent publication records and experiences are qualified to evaluate their peer's instruction. Wherever a discussion about or a proposal for student ratings emerges, this statement can usually be heard. Recently, a well known statistician presented just such an agrument in The American Statistician (Deming, 1972). Fortunately (or unfortunately for those who believe such a contention), about the time that Professor Deming's article appeared a study had been completed addressing that very topic. Aleamoni and Yimer (1973) found that colleague and student ratings were not significantly related to the instructor's research productivity (the correlations were .07 and -.04, respectively). In addition, there was ample evidence previously (Guthrie, 1954; Stallings and Spencer, 1967; Swanson and Sisson, 1971) to show that colleague and student ratings were very highly correlated (from .63 to .70). The response to Professor Deming's article can be found in a later issue of The American Statistician (Aleamoni, 1972).

2. Most student rating schemes are nothing more than a popularity contest. Answers to this problem are presented from published and unpublished studies on the CEQ and The Advisor (a student-sponsored form) (Feldman, 1970) at UIUC. The studies conducted in developing and utilizing the CEQ subscales (Aleamoni and Spencer, 1973) indicated that no single subscale (i.e., Method of Instruction) completely overlapped the other subscales. Basically, this means that an instructor who received a high decile rating on the Instructor subscale (made up of items like "The instructor seemed to be interested in students as persons.") would not be guaranteed high decile ratings on the other four subscales

(General Course Attitude, Method of Instruction, Course Content, and Interest and Attention). In order to more fully explore this problem, the written comments made by students on both the CEQ and The Advisor were reviewed and compared to their objective responses. The results indicated that students would frankly praise an instructor for his warm, friendly, humorous, etc., manner in the classroom, but if his course was not well organized or his method of stimulating students to learn was poor, the students would equally frankly criticize him in those areas. When these comments were compared to the objective measures in the same areas, a high degree of relationship was observed. This evidence, in addition to that presented by Costin, et al., (1971), indicates that students are discriminating judges and not easily fooled by the good "showman" who is lacking in the other instructional qualities.

3. Students cannot make accurate judgments until they are out of the course and away from the university for several years. This point is repeatedly raised by faculty and was recently presented by McKeachie (1969). This problem is a very difficult one with which to deal because longitudinal follow-up studies need a great deal of attention to the question of whether samples are comparative and representative. The sampling problem is further compounded by the fact that almost all student attitudinal data relating to a course or instructor is gathered anonymously. Most studies in this area, therefore, have relied on surveys of alumni and/or graduating seniors.

One of the earliest studies by Drucker and Remmers (1950, 1951) showed that alumni who were out of school five to ten years rated the

instructors much the same as students currently enrolled. More recent evidence by Aleamoni and Yimer (1974) further substantiates the earlier findings. This evidence seems to indicate, contrary to popular belief and speculation, that students are very perceptive in their judgments and are in substantial agreement with peers who have been out of the course and away from the university for several years. A very carefully controlled follow-up study, however, needs to be conducted in order to fully answer this problem.

4. The student rating forms are both unreliable and invalid. In order to answer this problem it must be divided into two portions, one concerning the reliability of student rating forms and the other, the validity of student rating forms.

The research literature is replete with studies that answer the question of the reliability of student rating forms. Almost all of the instruments which have been carefully constructed and tested by professionals yield reliabilities at the level of .80 and .90 on the subscales as well as the total instrument (Costin, et al., 1971). Reliabilities computed on the items and subscales making up the CEQ (Aleamoni, 1972b), for example, have yielded item reliabilities ranging from .73 to .94 and subscale reliabilities ranging from .80 to .98. It should be noted, however, that wherever student rating forms are not carefully constructed with the aid of professionals, as in the case of most student generated forms (Bendly and Aleamoni, 1972), the reliabilities may be so low as to completely negate the evaluation effect and its results.

Trying to answer the problem of the validity of student rating forms is much more difficult than addressing the reliability problem. In order to validate something one must have a criterion measure for comparison. One of the criterion measures that can be used to validate student rating forms is to determine how well the items and subscales measure what is intended (called content validity). This is usually accomplished by carefully constructing the instrument so that it contains items and subscales that will yield measures in the areas that are considered necessary by an individual or group of experts in the field under consideration. Most of the student rating forms generated were validated by using just this sort of approach (Costin, et al., 1971). The use of statistical tools like Factor Analysis have also been used to verify subjectively determined dimensions of the instructional setting and process. The CEQ used both statistical (Factor Analysis) and subjective expert judgments in generating the items and subscales that make up the form (Aleamoni and Spencer, 1973).

Many other criterion measures have been suggested by which to validate student ratings. Some of those are peer (or colleague ratings), expert judges' ratings, student learning, etc. You will notice that many of the problems and questions that faculty pose, such as the seven stated above, can also be interpreted as validity concerns. In order to avoid any redundancy of answers to the faculty concerns, let me simply indicate that studies in which student ratings were compared to (a) colleague rating (Guthrie, 1954; Swanson and Sisson, 1971; Aleamoni and Yimer, 1973), (b) expert judges'

ratings (Stallings and Spencer, 1967), and (c) student learning measures (Cohen and Berger, 1970) all indicated the existence of high positive correlations which can be considered as providing additional validity evidence.

5. What extraneous variables or conditions affect student ratings? Studies conducted on the (a) size of the class (Guthrie, 1954; Costin, et al., 1971; Aleamoni and Graham, 1974), (b) sex of the student (Costin, et al., 1971; Aleamoni, 1972b), (c) time of day the course was offered (Aleamoni, 1972b), and (d) term (or semester) the course was offered (Costin, et al., 1971; Aleamoni, 1972b), indicate that these variables had little or no relationship to the student ratings. The rank of the instructor (Guthrie, 1954; Costin, et al., 1971; Aleamoni and Graham, 1974) seems to have some effect but it is usually not quite statistically significant.

On the other hand, (a) whether the student was taking the course as a requirement or on an elective basis (Costin, et al., 1971; Gillmore and Brandenburg, 1974), and (b) the level of the course (Costin, 1971; Aleamoni and Graham, 1974) yielded significant effects on student ratings. Such effects, however, can be controlled through the use of appropriate normative data, which is an important feature of the results reported for the CEQ.

The one study cited by Costin, et al., (1971) indicated that whether the student was a major or a non-major did not affect his faculty rating. This concern is presently being investigated using CEQ data.

6. The grade or mark a student receives in the course is highly correlated to his rating of the course and the instructor. There is ample

evidence in the research literature to provide a definite answer to this concern. In almost all of the studies cited in Costin, et al., (1971) and by investigators such as Guthrie (1954), Remmers (1960) and Weaver (1960) little or no relationship has been found between a student's grade and faculty rating. In fact, the positive correlations seldom exceed .30. The evidence, therefore, indicates that students do not necessarily rate an instructor or course based upon the grade they have or are about to receive.

7. How can student evaluations possibly be used to improve instruction? This could well be the most important question to be asked concerning student evaluation of instruction. There has been a great deal of discussion in the research literature about how, when, and where such evaluations should be used, but no clear-cut evidence has been offered to show that it does have an effect on instruction. The studies by Miller (1971), Braunstein, Klein, and Pachla (1973), and Centra (1973) were inconclusive with respect to the effect of feedback at midterm to instructors whose instruction was again evaluated at the end of the term. However, such evidence is found in a recently completed study by Aleamoni (1974), where student ratings gathered near the end of the term, on the CEQ, were presented to University instructors along with the opportunity of discussing their results with a measurement and evaluation expert. The CEQ ratings were again gathered at the end of the same courses (one semester to a year later) taught by the same instructors. The results revealed that there was a significant increase in the student ratings of these faculty on the two lowest rated CEQ subscales that were discussed in the meetings with the measurement and evaluation expert. On the

other hand, the group of faculty who was not able to avail themselves of expert consultation but did receive the CEQ results, remained unchanged in their subscale ratings. Even though this study needs to be replicated, it represents the first tangible evidence that student ratings can be used to improve instruction.

It should be obvious by now that the problems and questions that faculty typically raise about the appropriateness of using student ratings of instructor and instruction have very definite answers which can be interpreted as being highly supportive for using such ratings. Interestingly enough, many faculty will still disregard the evidence and will maintain that there still is not enough evidence or that there are still too many unanswered questions and problems to take student ratings seriously. However, these same faculty would stoutly defend their own methods of evaluating students even though they might not be able to present any evidence to substantiate their claims.

In conclusion, therefore, it might be useful to reverse the situation and ask faculty members to consider the seven concerns posed above from the point of view of <u>faculty evaluating students</u>! How much evidence would or could be provided to convince the students that:

1. (a) Faculty can consistently judge student learning?, and (b) the performance of students with excellent ability is not used to set the standard for the rest of the students in the course?

2. Most faculty grading schemes are not affected by the attentive, polite, conforming, and non-creative student?

3. What was taught in the course is useful in other courses or outside that university?

4. The course examinations are reliable and valid?

5. An instructor's marks or grades are not affected by:

   (a) the size of the class?

   (b) the sex of the student?

   (c) the time of day the course was offered?

   (d) whether the student was taking the course as a required or an elective?

   (e) whether the student was a major or a non-major?

   (f) the term (or semester) the course was offered?

   (g) the level of the course?

   (h) his professional rank?

6. Instructors who had a particularly rough time when they were in college do not tend to be just as rough on their students?

7. The course examinations are useful in improving their learning?

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Appendix A

C E Q

PLEASE USE THIS SIDE OF THE FORM FOR YOUR PERSONAL COMMENTS ON TEACHER EFFECTIVENESS AND GENERAL COURSE VALUE--THEN TURN IT OVER AND ANSWER THE OBJECTIVE QUESTIONS ON THE OTHER SIDE, USING PENCIL ONLY. YOUR INSTRUCTOR WILL NOT SEE YOUR COMPLETED EVALUATION UNTIL AFTER FINAL GRADES ARE IN FOR YOUR COURSE.

COURSE CONTENT

PLEASE GIVE YOUR COMMENTS ON THE COURSE CONTENT, SUBJECT MATTER, AND ANY PARTICULAR RELEVANCE THIS COURSE HAS HAD TO YOUR AREA OF STUDY.

INSTRUCTORS

WRITE THE NAME OF YOUR PRINCIPAL INSTRUCTOR _____ T.A. _____

WHAT ARE YOUR GENERAL COMMENTS ABOUT THE INSTRUCTOR(S) IN THIS COURSE?

INSTRUCTIONAL OBJECTIVES

WERE THE INSTRUCTIONAL OBJECTIVES CLEARLY STATED FOR THIS COURSE? YES _____ NO _____ COMMENT:

PAPERS AND HOMEWORK

COMMENT ON THE VALUE OF BOOKS, HOMEWORK, AND PAPERS (IF ANY) IN THIS COURSE.

EXAMS

COMMENT ON THE EXAMS (QUIZZES, PRACTICALS) AS TO DIFFICULTY, FAIRNESS, ETC.

GENERAL

1. WHAT IMPROVEMENTS IN THIS COURSE WOULD YOU SUGGEST?

2. PLEASE GIVE YOUR THOUGHTFUL EVALUATION OF THIS COURSE WITH COMMENTS. ARE YOU SATISFIED WITH WHAT YOU GOT OUT OF THIS COURSE? DO YOU CONSIDER IT A VALUABLE EDUCATIONAL EXPERIENCE? SIMPLY A MEANS OF PASSING A REQUIREMENT? OR A DISAPPOINTMENT? PLEASE COMMENT.

PLEASE FILL OUT THE OTHER SIDE

U F 31-153

OPTICAL SCANNING CORPORATION

FORM 73 ILLINOIS COURSE EVALUATION QUESTIONNAIRE CEQ

Measurement and Research Division, Office of Instructional Resources

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MARK:

- SA IF YOU STRONGLY AGREE WITH THE ITEM
- A IF YOU AGREE MODERATELY WITH THE ITEM
- D IF YOU DISAGREE MODERATELY WITH THE ITEM
- SD IF YOU STRONGLY DISAGREE WITH THE ITEM

1. MARK ONLY ONE RESPONSE PER ITEM USING PENCIL ONLY. a)
2. ERASE CHANGED ANSWERS CLEANLY AND COMPLETELY. b)

SAMPLE MARKS

1 COURSE CODE

2 ARE YOU: FRESH. SOPH. JUN. OR. SENIOR GRAD. OTHER

3 YOUR EXPECTED GRADE IN THIS COURSE: A B C D E

4 ARE YOU TAKING THIS COURSE FOR: PASS-FAIL REQUIRED YES NO ELECTIVE

5 SPECIAL CODE 1 2 3 4 5 6 7 8 9

6 THIS COURSE IS WITHIN YOUR: MAJOR MINOR OTHER

7 ARE YOU: MALE FEMALE

8 SEMESTER: FALL SPRING SUMMER

9 RATE THE FOLLOWING: COURSE IN GENERAL; MAJOR INSTRUCTOR; COURSE CONTENT — EXCELLENT VERY GOOD GOOD FAIR POOR VERY POOR

(Number) (Name)

BEGIN OPTIONAL ITEM SECTION I

| | | |

Appendix B

* * * MERMAC -- TEST ANALYSIS AND QUESTIONNAIRE PACKAGE * * *

RESULTS FOR THE OBJECTIVE ITEMS ON THE CEQ FORM 73 QUESTIONNAIRE

501003JOHNSTON THOMAZAFAS 124 SECTION B ENROL 0011 SPNG,1974 00242

STATUS

FRESH	SOPH	JR	SR	GRAD	OTHER	OMIT
0.87	0.13	0.00	0.00	0.00	0.00	0.00

EXPECTED GRADE

A	B	C	D	E	OMIT
0.40	0.53	0.07	0.00	0.00	0.00

PASS-FAIL

YES	NO	OMIT
0.00	0.87	0.13

COURSE OPTION

REQ	ELECT	OMIT
0.40	0.47	0.13

MAJOR-MINOR

MAJOR	MINOR	OTHER	OMIT
0.13	0.00	0.80	0.07

SEX

FEMALE	MALE	OMIT
0.07	0.37	0.07

CONTENT RATING

EXCEL	V GD	GOOD	FAIR	POOR	V PR	OMIT
0.27	0.47	0.20	0.00	0.00	0.00	0.07

INSTR RATING

EXCEL	V GD	GOOD	FAIR	POOR	V PR	OMIT
0.80	0.07	0.07	0.00	0.00	0.00	0.07

COURSE RATING

EXCEL	V GD	GOOD	FAIR	POOR	V PR	OMIT
0.27	0.60	0.07	0.00	0.00	0.00	0.07

SEMESTER

FALL	SPRING	SUMMER	OMIT
0.00	0.80	0.00	0.20

ITEM	SA	A	D	SD	OMIT	BEST	MEAN	S.D.	DECL	0123456789
1.	0.67	0.33	0.00	0.00	0.00	SA	3.67	0.49	9	*
2.	0.93	0.07	0.00	0.00	0.00	SA	3.93	0.26	9	*
3.	0.00	0.27	0.27	0.47	0.00	SD	3.20	0.86	6	*
4.	0.67	0.33	0.00	0.00	0.00	SA	3.67	0.49	9	*
5.	0.00	0.00	0.33	0.67	0.00	SD	3.67	0.49	9	*
6.	0.00	0.00	0.33	0.67	0.00	SD	3.67	0.49	8	*
7.	0.33	0.53	0.13	0.00	0.00	SA	3.20	0.68	6	*
8.	0.00	0.27	0.47	0.27	0.00	SD	3.00	0.76	6	*

9.	0.60	0.40	0.00	0.00	0.00	SA	3.60	0.51	9	*
10.	0.93	0.07	0.00	0.00	0.00	SA	3.93	0.26	9	*
11.	0.87	0.13	0.00	0.00	0.00	SA	3.87	0.35	8	*
12.	0.00	0.00	0.20	0.80	0.00	SD	3.80	0.41	9	*
13.	0.47	0.53	0.00	0.00	0.00	SA	3.47	0.52	8	*
14.	0.00	0.13	0.40	0.47	0.00	SD	3.33	0.72	9	*
15.	0.00	0.00	0.53	0.47	0.00	SD	3.47	0.52	8	*
16.	0.00	0.07	0.33	0.60	0.00	SD	3.53	0.64	8	*
17.	0.00	0.00	0.27	0.73	0.00	SD	3.73	0.46	9	*
18.	0.53	0.47	0.00	0.00	0.00	SA	3.53	0.52	9	*
19.	0.53	0.47	0.00	0.00	0.00	SA	3.53	0.52	8	*
20.	0.33	0.60	0.07	0.00	0.00	SA	3.27	0.59	8	*
21.	0.00	0.20	0.40	0.40	0.00	SD	3.20	0.77	9	*
22.	0.00	0.00	0.20	0.80	0.00	SD	3.80	0.41	9	*
23.	0.73	0.27	0.00	0.00	0.00	SA	3.73	0.46	9	*

--SUBSCORE--	ITEMS	RESP	MEAN	S.D.	REL	RANK	LEVEL	INSTI	COLL-EGE	OVER-ALL
GENERAL ATTITUDE	4	1.00	3.60	0.55	0.35	8	9	8	NONE	8
METHOD	4	1.00	3.55	0.53	0.93	8	9	8	NONE	8
CONTENT	4	1.00	3.42	0.45	0.86	9	9	9	NONE	9
INTEREST	4	1.00	3.55	0.40	0.77	9	9	9	NONE	9
INSTR:GENERAL	2	1.00	3.67	0.30	0.70	9	9	9	NONE	9
INSTR:SPECIFIC	5	1.00	3.68	0.27	0.49	9	9	9	NONE	9
TOTAL	23	1.00	3.58	0.30	0.90	9	9	9	NONE	9

SAMPLE SIZE = 15